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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,476	08/19/2003	John Karl Waterman	006.0079	7377

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EXAMINER	
XIAO, KE	

ART UNIT	PAPER NUMBER
2675	

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/644,476	WATERMAN, JOHN KARL	
	Examiner	Art Unit	
	Ke Xiao	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 15* is/are rejected.

7)☒ Claim(s) *11-14 and 16-20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Koike (US 6,538,648).

Regarding independent **Claim 1**, Koike teaches a display system comprising:

a display (Koike, Fig. 1 elements 7RGB);

a first display driver integrated circuit having a first plurality of channels coupled to the display (Koike, Fig. 1 elements 1RGB - 4RGB); and

a second display driver integrated circuit having a second plurality of channels coupled to the display wherein control signals from the first display driver integrated circuit for enable the display to receive video information from the first plurality of channels are phase adjusted to control signals from the second display driver integrated circuit for enabling the display to receive video information from the second plurality of channels to prevent visual artifacts on the display (Koike, Figs. 1 and 2, Col. 5 line 40 to Col. 6 line 57).

Regarding **Claim 2**, Koike inherently teaches:

a first memory coupled to the first display driver integrated circuit for storing video information (Koike, Fig. 1 element R); and

a second memory coupled to the second display drive integrated circuit for storing video information (Koike, Fig. 1 element G).

To elaborate if first and second memory did not exist then the Video Feeds would have no where to come from. There must inherently be a memory to store video information in order to have a video feed.

Regarding **Claim 3**, Koike teaches that the display is a liquid crystal micro-display (Koike, Fig. 1 element 7RGB).

Regarding **Claim 4**, Koike teaches that the system further includes a phase lock loop to compare a clock signal of the first display driver integrated circuit to a clock signal of the second display driver integrated circuit wherein the clock signal of the first display driver integrated circuit has an equal frequency as the clock signal of the second display driver integrated circuit and wherein the phase lock loops generates an error signal used to reduce a phase difference between the clock signals of the first and second driver integrated circuits (Koike, Fig. 1 element 2RGB and element 30, Col. 5 line 40 to Col. 6 line 57).

Regarding **Claims 5 and 6**, Koike further teaches that the first and second display driver integrated circuits both comprise:

a digital processing section for receiving and processing digital video information (Koike, Fig. 1 element 3RGB);

an analog conversion section coupled to the digital processing section wherein the analog conversion section converts digital video information to analog video information that is provided to the second plurality of channels (Koike, Fig. 1 element 4RGB); and

a timing/clock section coupled to the digital processing section coupled to the digital processing section, the analog conversion section, the first and second memories respectively, and the display (Koike, Fig. 1 elements 20 and 30).

Regarding **Claim 7**, Koike further teaches that the first and second display driver integrated circuits each generated a frame synchronization signal to indicate when the first and second display driver integrated circuits are prepared to process video information (Koike, Fig. 1 elements 2RGB and 3RGB, Col. 5 line 40 to Col. 6 line 57).

Regarding independent **Claim 10**, Koike teaches a method for driving a liquid crystal micro-display comprising the steps of:

coupling at least one channel from a first display driver integrated circuit to the liquid crystal micro-display (Koike, Fig. 1 elements 1RGB-4RGB);

coupling at least one channel from a second display driver integrated circuit to the liquid crystal micro-display (Koike, Fig. 1 elements 1RGB-4RGB);

comparing a frame synchronization signal from the first and second display driver integrated circuits (Koike, Col. 5 line 40 to Col. 6 line 57); and

initiating a transfer of video information through the at least one channel of the first and second display driver integrated circuits to the liquid crystal micro-display when the frame synchronization signal indicated the first and second display driver integrated circuits are both prepared to transfer video information together to the liquid crystal micro-display (Koike, Fig. 1 elements 2RGB - 4RGB, 20 and 30, Col. 5 line 40 to Col. 6 line 57).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (US 6,538,648) in view of Morita (US 2003/0006979).

Regarding **Claim 8**, Koike fails to teach that the first and second display driver integrated circuits each generate a frame polarity signal to indicate a polarity of the analog video information being provided to the display. Morita teaches a display driver which outputs a frame polarity signal (Morita, Fig. 5 elements 7, 8 and 16). It would have been obvious to add the polarity inversion scheme including the polarity signal of Morita to the display device of Koike in order to prevent liquid crystal degradation.

Regarding **Claim 9**, Koike further teaches that the calibration of the analog conversion section of the second display driver integrated circuit is performed using reference voltages and comparators from the first display driver integrated circuit (Koike, Fig. 1 element 30 and 4RGB).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawate (US 4,368,523) in view of Koike (US 6,538,648).

Regarding independent **Claim 15**, Kawate teaches a display system (Kawate, Fig. 20) comprising:

a first liquid crystal micro-display;

a second liquid crystal micro-display;

a third liquid crystal micro-display (Kawate, Fig. 20 element 1 first second and third pixels, Col. 16 line 53 to Col. 17 line 34);

a first display driver integrated circuit having a plurality of channel outputs for providing video information wherein the plurality of channel outputs is coupled to at least one of the first, second, or third liquid crystal micro-displays (Kawate, Fig. 20 element 34_1); and

a second display driver integrated circuit having a plurality of channel outputs for providing video information wherein the plurality of channel outputs is coupled to at least one of the first, second, or third liquid crystal micro-displays and wherein one of the first, second or third micro-displays receives video information through channel

outputs from both the first and second display driver integrated circuits (Kawate, Fig. 20 element 34_2).

Kawate fails to teach that the display is a color display. Koike teaches that color liquid crystal display (Koike, Fig. 1 elements 7RGB). It would have been obvious to add color as taught by Koike to the liquid crystal display of Kawate in order to provide a more realistic image.

Allowable Subject Matter

Claims 11- 14 and 16-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding **Claim 11**, prior art fails to teach "comparing frame polarity signals from the first and second display driver integrated circuits ... correcting the polarity difference of the video information between the first and second display driver integrated circuits".

Claims 12-14 depend either direction or indirection from Claim 11.

Regarding **Claim 16**, prior art teaches that video information is stored at the same time in the first, second, and third micro-displays but fails to teach an internal

clock for both the first and second display drivers where the first and second display drivers are coupled to a single liquid crystal micro-display as claimed.

Claims 17-20 depend either directly or indirectly from Claim 16.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (571) 272-7776. The examiner can be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KENT CHANG
PRIMARY EXAMINER

March 3rd, 2006 - kx -